

WHAT IS CLAIMED IS:

1. A fuel tank fueling device for fueling a fuel tank through a fuel passage of a fuel inlet pipe, said fuel tank fueling device comprising:

5 a casing main body detachably attached to the inlet pipe;

a handle provided on the casing main body, the handle being operable to open and close the fuel passage;

a sealing component interposed between the casing main body and a seat surface of the fuel inlet pipe;

10 a spring constructed and arranged to press the sealing component against the seat surface; and

a cam mechanism constructed and arranged to convert an operating force applied to the handle in a closing direction into a spring pressing force, thereby pressing the sealing component against the seat surface.

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2. The fuel tank fueling device according to claim 1, further comprising a guide formed on an inside wall of the fuel inlet pipe to rotatably support and guide the casing main body against the fuel inlet pipe and to prevent the casing main body from being removed from the inlet pipe.

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3. The fuel tank fueling device according to claim 2, wherein the casing main body comprises:

a rotating casing having the handle mounted thereto, the rotating casing being rotatably supported by the guide; and

a sliding casing equipped with the sealing component, the sliding casing being slidably guided by the guide in an axial direction relative to the rotating casing;

wherein the spring is disposed between the rotating casing and the sliding casing.

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4. The fuel tank fueling device according to claim 3, wherein the cam mechanism comprises a cam surface interposed between the rotating casing and the sliding casing, the cam surface constructed and arranged to convert the rotating force of the rotating casing into a spring pressing force.

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5. The fuel tank fueling device according to claim 4, wherein the cam surface is disposed in a passage from an inside of the fuel inlet pipe to the outside, the passage being apart from the sealing component.

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6. The fuel tank fueling device according to claim 5, wherein the cam surface comprises:

a detent location for causing the seat surface not to be sealed by the seal means when the spring is compressed into a state in which the spring force is accumulated; and

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a sealing location for causing the seat surface to be sealed by the sealing component when the sliding casing is allowed to slide in the axial direction against the rotating casing by releasing of the urging force accumulated in the spring responsive to the rotation of the handle.

7. The fuel tank fueling device according to claim 6, wherein the spring is a coil spring mounted on a periphery of the casing main body.

8. The fuel tank fueling device according to claim 7, further comprising a pressure valve housed in the casing main body for adjusting a pressure of the tank main body to within a predetermined range.

9. A fuel tank fueling device for fueling a tank main body, through a fuel passage of an inlet pipe the fuel tank fueling device comprising:

10 a casing main body detachably mounted on the inlet pipe;

a handle disposed on the casing main body for opening and closing the fuel passage;

a gasket disposed at an upper part of the casing main body for sealing against a seat surface of the inlet pipe;

15 a spring disposed on the casing main body, the spring constructed and arranged to press the gasket against the seat surface;

neck engagement threading formed on an inner wall of the inlet pipe;

an upper cam ring disposed rotatably on a periphery of the casing main body and the gasket, rotation of the upper cam ring being blocked by the neck engagement
20 threading; and

a lower cam ring movably mounted in an axial direction on a periphery of the casing main body,

wherein the lower cam ring is guided along the upper ring at the beginning of the rotating operation of the handle, and is positioned by the neck engagement
25 threading after moving in an axial direction when rotated subsequent to the initial

rotation, and is guided in such a way as to press the spring while thus positioned so that the gasket seals the seat surface.

10. A fuel tank fueling device for fueling a tank main body through a fuel
5 passage of an inlet pipe, said fuel tank fueling device comprising:

a rotating casing having support ends and a handle for opening and closing the fuel passage, the rotating casing being detachably and rotatably supported at an opening of the inlet pipe;

a sliding casing that is slidably supported in an axial direction relative to the
10 rotating casing, the sliding casing having guide protrusions;

a gasket mounted at a bottom of the sliding casing, the gasket sealing a seat surface of the inlet pipe;

a spring interposed between the rotating casing and the sliding casing, the spring urging the gasket to press against the seat surface;

15 an annular detent disposed on an inner wall of the inlet pipe, the annular detent having insertion notches used for an insertion of the support ends and engaging with the support ends so that the rotating casing is prevented from being removed from the inlet pipe while being rotatably supported;

rotation detents located on the inner wall of the inlet pipe, the rotation detents
20 engaging with the guide protrusions on the sliding casing to block rotation of the sliding casing and to guide the sliding casing in an axial direction; and

a cam ring interposed between the rotating casing and the sliding casing, the cam ring having a cam surface causing the sliding casing to move in the axial direction so that the gasket seals, pressed by a spring, seals the seat surface when the

rotating casing is rotated a predetermined angle, with the rotation of the sliding casing regulated by the rotation detents.

11. The fuel tank fueling device according to claim 9, wherein the cam
5 surface is constructed and arranged to allow the spring to press the gasket at an initial angle of 5° to 90° in an operating angle range of 90° to 180° of the handle.

12. The fuel tank fueling device according to claim 10, wherein the cam
10 surface is constructed and arranged to allow the spring to press the gasket when an initial angle of the handle is more than 5° in an operating angle range of 90 to 180° of the handle.

13. The fuel tank fueling device according to claim 1, further comprising:
a clutch disposed between the casing main body and the handle, the clutch
15 constructed and arranged to produce an engaged state in which the casing main body is made to rotate with the handle when the handle is rotated, and an unengaged state in which the casing main body does not rotate even when the handle is rotated; and
a clutch spring urging the clutch in a direction resulting in an unengaged state.

20 14. The fuel tank fueling device according to claim 13, wherein the clutch comprises an array of gears constructed and arranged to produce the engaged state and the unengaged state by locking and unlocking of the gears.

15. The fuel tank fueling device according to claim 13, wherein the clutch
25 spring comprises a cantilever piece protruding from the casing main body, an end of

the cantilever piece pressing on the handle to cause the clutch spring to press the handle.

16. The fuel tank fueling device according to claim 13, wherein the clutch
5 spring comprises a cantilever piece protruding from the handle, an end of the cantilever piece pressing on the casing to cause the clutch spring to press the casing main body.

17. The fuel tank fueling device according to claim 16, wherein the fuel
10 inlet pipe, the handle, and the cantilever piece are made of a conductive material, the cantilever piece constructed and arranged to come into contact with the fuel inlet pipe.

18. The fuel tank fueling device according to claim 1, further comprising:
a cap retainer for retaining the fuel cap;
15 a flexible cord-shaped tether extending from the cap retainer;
an attachment formed on an end of the tether for attaching to a vehicle body member; and
a detachable component having a detent formed on the cap retainer and an engaged component formed on an end of the tether, the engaged component being
20 detachably attached to the detent.

19. The fuel tank fueling device according to claim 18, wherein the cap retainer is ring-shaped and rotatably retains the fuel cap.

20. The fuel tank fueling device according to claim 18, wherein the vehicle body member is a lid panel, covering the fuel cap.

21. The fuel tank fueling device according to claim 20, wherein the engaged component is a clip comprising: a base component with a flat contact surface forming a portion of the tether; a diametrically expandable tubular component protruding from the contact surface; and a core that is inserted into the tubular component, wherein the core is constructed and arranged to expand a diameter of the tubular component to cause the tubular component to engage with the lid panel.

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22. The fuel tank fueling device according to claim 21, wherein the core is connected with a U-shaped connector to an end of the tether.

23. The fuel tank fueling device according to claim 21, wherein the core has a first engagement component formed on an outer peripheral surface thereof, and the tubular component has a second engaged component formed on an inner peripheral surface thereof,

wherein the first engagement component and the second engagement component are constructed and arranged to engage with each other when inserted midway into the tubular component, such that the core is retained by the tubular component.

24. The fuel tank fueling device according to claim 23, wherein the cap retainer, the tether, and the vehicle body attachment component are unitarily made of a soft resin.

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